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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,615	09/22/2003	Theodore W. Houston	TI 35657	1175

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TEXAS INSTRUMENTS INCORPORATED  
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EXAMINER
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OWENS, DOUGLAS W

ART UNIT	PAPER NUMBER
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2821

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/667,615

Applicant(s)

HOUSTON, THEODORE W.

Examiner

Douglas W. Owens

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-7,9-14,17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17,19 and 20 is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,10,11,13,14 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
2. Claims 1, 3, 5, 6, 7, 10, 13, 15 21 – 24 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,720,619 to Chen et al.

Regarding claims 1 and 21, Chen et al. teach a transistor (Figs. 1(c) and 2, for example) comprising:

- a body region insulated from a substrate;
  - an insulating layer (the gate dielectric) on a surface of the body region; and
  - a gate structure on the insulating layer and conformally surrounding a portion of the body region, wherein a width of the body region is sufficient to provide a not fully depleted region (Col. 3, lines 47 – 57; Col. 4, lines 29 – 34; Col. 6, lines 6 – 18);
  - wherein the gate structure is a fin-fet;
  - wherein the width of the body region is greater than a length of the gate structure
- See the chart of Fig. 4., where the body width can be 1.2 microns and the length 0.10 and still be partially depleted.

Regarding claims 3 and 14, Chen et al. teach a memory device, wherein the gate structure is a tri-gate and a ratio of the width of the body region to the gate length is 1.5:1. This range is shown in for a PD transistor in the chart of Fig. 4.

Regarding claims 5 and 6, Chen et al. teach a memory device, wherein the body region is insulated from the substrate by an oxide layer (Buried Oxide; Col. 6, lines 6 – 18).

Regarding claims 7 and 23, Chen et al. teach a method of making a transistor (Figs. 1(c) and 2), comprising:

forming a body region insulated from a substrate;

depositing an insulating layer (Col. 4, lines 48 – 50) on a surface of the body region; and

forming a gate structure on the insulating layer and conformally surrounding a portion of the body region, wherein a width of the body region is sufficient to provide a not fully depleted region;

wherein the width of the body region is greater than a length of the gate structure See the chart of Fig. 4., where the body width can be 1.2 microns and the length 0.10 and still be partially depleted;

wherein gate structure is a fin-fet.

Regarding claim 10, Chen et al. teach a method, wherein the body region is formed from an SOI substrate (Col. 2, lines 52 – 61).

Regarding claim 13, Chen et al. teach a method, wherein the gate structure is a tri-gate.

Regarding claims 22 and 24, Chen et al. teach a ratio of the width of the body region to a length of the gate length is about 1:1. See the chart of Fig. 4.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. as applied to claims 7 and 10 above, and further in view of US Patent No. 6,720,231 to Fried et al.

Chen et al. do not teach a method, wherein forming the body region includes forming a mask by depositing and patterning a resist over the silicon layer and performing an anisotropic etch to remove portions of the silicon layer not protected by the mask. Fried et al. teach a method of forming a body region including forming a mask by depositing and patterning a resist over the silicon layer and performing an anisotropic etch to remove portions of the silicon layer not protected by the mask (Col. 4, lines 23 – 36). It would have been obvious to one of ordinary skill in the art to incorporate the method taught by Fried et al. into the method of Chen et al, since it is desirable to use known and reliable methods of patterning semiconductor layers.

***Allowable Subject Matter***

5. Claims 17, 19 and 20 are allowed.

Art Unit: 2821

6. Claims 9 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments filed February 1, 2007 have been fully considered but they are not persuasive.

It is noted that some of the pending claims were rejected in a final rejection mailed on May 17, 2005. Upon further consideration, it was determined that Chen et al. still applies to those claims. Arguments with respect to the response filed on 9/15/2005 are addressed above in the statement of rejection.

Any inquiry concerning this communication should be directed to Douglas W. Owens at telephone number 571-272-1662.

A handwritten signature in black ink, appearing to read "Douglas W. Owens". The signature is fluid and cursive, with the first name "Douglas" being the most prominent part.

Douglas W Owens  
SPE  
Art Unit 2821

DWO

April 16, 2007